CLAIMS:

1. A wet cake containing a predominant amount of decabromodiphenylethane and having an occluded free bromine content of from about 500 ppm to about 2000 ppm.

2. A wet cake according to Claim 1 wherein said bromine content is from about 900 ppm to about 1200 ppm.

3. A wet cake according to Claim 1 wherein said bromine content is from 500 ppm to 2000 ppm.

4. A wet cake according to Claim 1 wherein said bromine content is from 838 ppm to 1308 ppm.

5. A dry solid brominated diphenylethane product mixture ground to an average particle size of about 3 to about 5 microns, and having a content of about 700 to about 1000 ppm of occluded free bromine.

6. A product comprising at least one of octabromodiphenylethane and nonabromodiphenylethane and containing at least about 90 wt% decabromodiphenylethane, said product having an occluded free bromine content of from about 100 ppm to about 300 ppm.

7. A product according to Claim 6 wherein about 95 wt% to about 99.8 wt% of said mixture is decabromodiphenylethane.

8. A composition which comprises a flammable macromolecular material and a flame retardant amount of a mixture of brominated diphenylethanes having an average bro-

mine number of at least about 9.0 and an occluded free bromine content of from about 100 ppm to about 300 ppm.

9. A composition according to Claim 8 wherein said mixture is comprised of decabromodiphenylethane, nonabromodiphenylethane, octabromodiphenylethane, and decabromostilbene.

10. A composition according to Claim 8 wherein an inorganic compound selected from ferric oxide, zinc oxide, zinc borate, bismuth oxide, arsenic oxide, phosphorus oxide, and antimony oxide is present therein.

11. A composition according to Claim 10 wherein said mixture of brominated diphenylethanes and said inorganic compound are in a weight ratio of from 1:1 to 7:1.

12. A composition according to Claim 11 wherein said weight ratio is from 2:1 to 4:1.

13. A composition according to Claim 10 wherein said inorganic compound is antimony oxide.

14. A composition according to Claim 13 wherein said mixture of brominated diphenylethanes and antimony oxide are in a weight ratio of from 1:1 to 7:1.

15. A composition according to Claim 14 wherein said weight ratio is from 2:1 to 4:1.

16. A composition according to Claim 9 wherein an inorganic compound selected from ferric oxide, zinc oxide, zinc borate, bismuth oxide, arsenic oxide, phosphorus oxide, and antimony oxide is present therein.

17. A composition according to Claim 16 wherein said mixture of brominated diphenylethanes and said inorganic compound are in a weight ratio of from 1:1 to 7:1.

18. A composition according to Claim 17 wherein said weight ratio is from 2:1 to 4:1.

19. A composition according to Claim 16 wherein said inorganic compound is antimony oxide.

20. A composition according to Claim 19 wherein said mixture of brominated diphenylethanes and antimony oxide are in a weight ratio of from 1:1 to 7:1.

21. A composition according to Claim 20 wherein said weight ratio is from 2:1 to 4:1.

22. A composition according to Claim 9 wherein about 95 wt% to about 99.8 wt% of said mixture is decabromodiphenylethane.

23. A composition according to Claim 22 wherein an inorganic compound selected from ferric oxide, zinc oxide, zinc borate, bismuth oxide, arsenic oxide, phosphorus oxide, and antimony oxide is present therein.

24. A composition according to Claim 23 wherein said mixture of brominated diphenylethanes and said inorganic compound are in a weight ratio of from 1:1 to 7:1.

25. A composition according to Claim 24 wherein said weight ratio is from 2:1 to 4:1.

26. A composition according to Claim 23 wherein said inorganic compound is antimony oxide.

27. A composition according to Claim 26 wherein said mixture of brominated diphenylethanes and antimony oxide are in a weight ratio of from 1:1 to 7:1.

28. A composition according to Claim 27 wherein said weight ratio is from 2:1 to 4:1.

29. A composition according to any of Claims 8-28 wherein said macromolecular material is a thermoplastic polymer.

30. A molded article formed from a composition according to Claim 29.